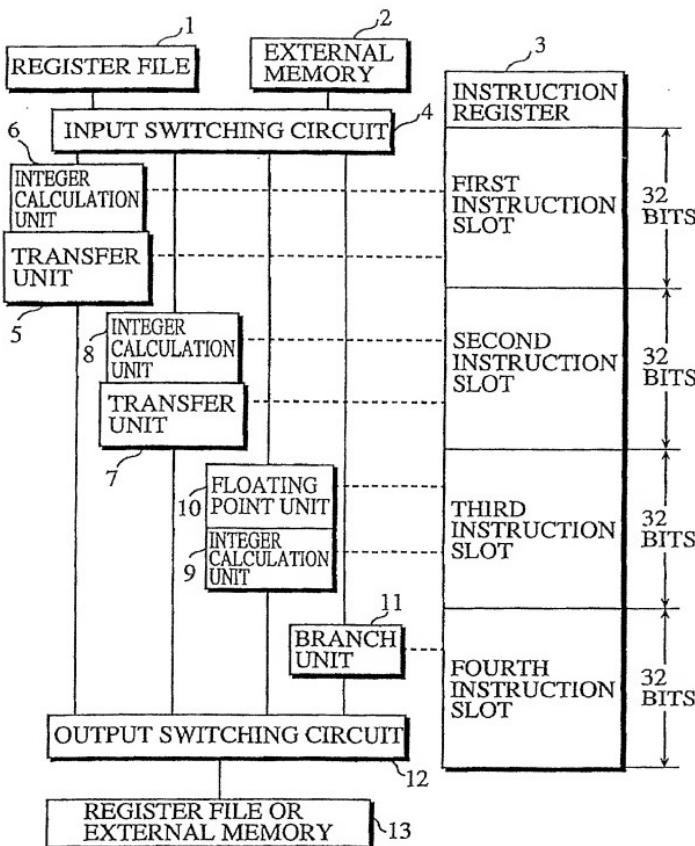


FIG. 1



TRANSMITTED: 90E80850

FIG. 2

LONG-WORD INSTRUCTION(TWO INSTRUCTIONS)

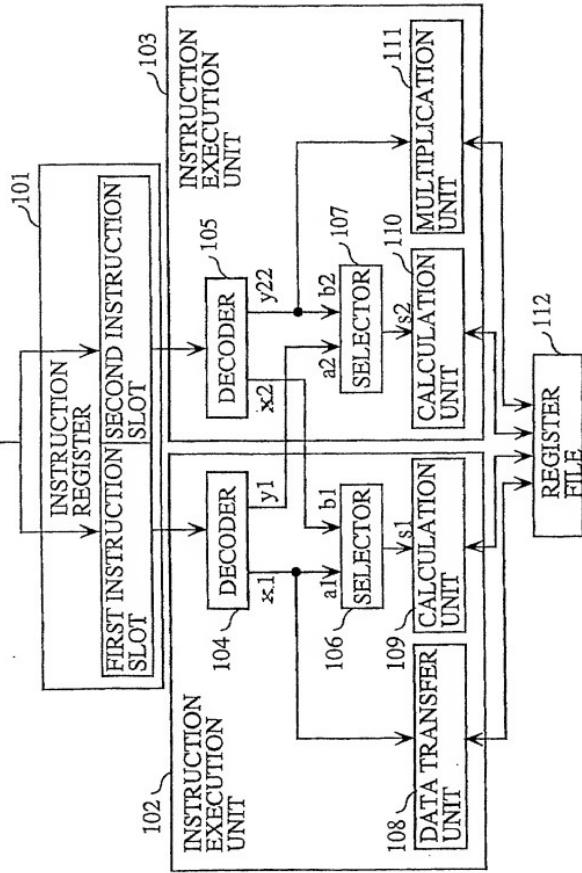


FIG. 3

INSTRUCTION	FIRST FIELD	SECOND FIELD	THIRD FIELD
nop	0	0	
mov	Rn	Rm	
add	Rn	Rm	
sub	Rn	Rm	
adsb	Rn	Rm	
mul	Rn	Rm	

INSTRUCTION SETS

FIG. 4

INSTRUCTION	MNEMONIC	PROCESSING CONTENT	ALLOCATED SLOT
			FIRST? SECOND?
DATA TRANSFER INSTRUCTION	mov Rn,Rm	TRANSFER DATA FROM Rn TO Rm	YES NO
ADD INSTRUCTION	add Rn,Rm	STORE Rm+Rn IN Rm	YES YES
SUBTRACT INSTRUCTION	sub Rn,Rm	STORE Rm-Rn IN Rm	YES YES
ADD-SUBTRACT INSTRUCTION	adsb Rn,Rm	STORE Rm+Rn IN Rn AND Rm-Rn IN Rm	YES YES
MULTIPLY INSTRUCTION	mul Rn,Rm	STORE Rm * Rn IN Rm	NO YES
NO-OPERATION INSTRUCTION	nop	NO OPERATION	YES YES

FIG. 5

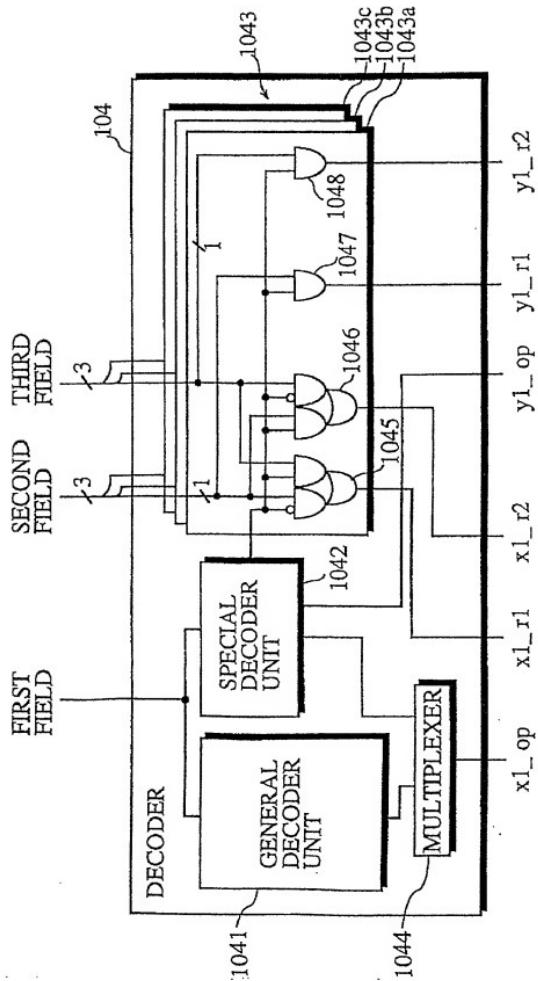


FIG. 6

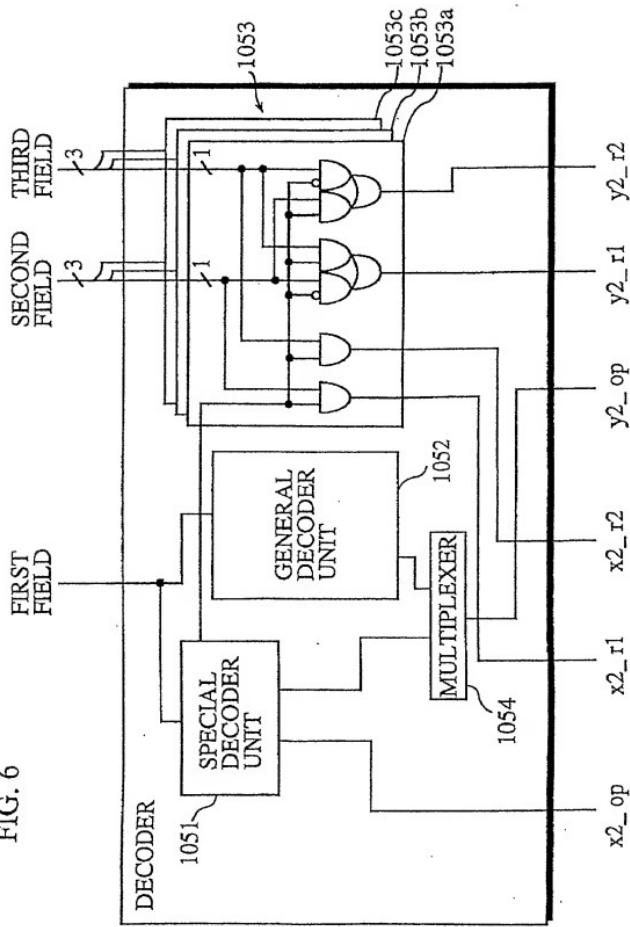


FIG. 7

OPERATION OF DECODER 104

INPUT	OUTPUT x1		OUTPUT y1			
	op	r1	r2	op	r1	r2
mov Rn1, Rm1	TRANSFER	Rn1	Rm1	NO OPERATION	--	--
add Rn1, Rm1	ADD	Rn1	Rm1	NO OPERATION	--	--
sub Rn1, Rm1	SUBTRACT	Rn1	Rm1	NO OPERATION	--	--
adsb Rn1, Rm1	ADD	Rn1	Rn1	SUBTRACT	Rn1	Rm1
nop	NO OPERATION	--	--	NO OPERATION	--	--

FIG. 8

OPERATION OF DECODER 105

INPUT	OUTPUT X2			OUTPUT Y2		
	op	r1	r2	op	r1	r2
add Rn2, Rm2	NO OPERATION	--	--	ADD	Rn2	Rm2
sub Rn2, Rm2	NO OPERATION	--	--	SUBTRACT	Rn2	Rm2
adsb Rn2, Rm2	SUBTRACT	Rn2	Rm2	ADD	Rm2	Rn2
mul Rn2, Rm2	NO OPERATION	--	--	MULTIPLY	Rn2	Rm2
nop	NO OPERATION	--	--	NO OPERATION	--	--

FIG. 9

OPERATION OF SELECTOR 106

INPUT a1		INPUT b1		OUTPUT				
x1_qp	x1_r1	x1_r2	x2_qp	x2_r1	x2_r2	s1_qp	s1_r1	s1_r2
(1) ADD	Rn1	Rm1	NO OPERATION	--	--	ADD	Rn1	Rm1
(2) SUBTRACT	Rn1	Rm1	NO OPERATION	--	--	SUBTRACT	Rn1	Rm1
(3) ADD	Rn1	Rm1	NO OPERATION	--	--	ADD	Rn1	Rm1
(4) TRANSFER	Rn1	Rm1	NO OPERATION	--	--	TRANSFER	Rn1	Rm1
(5) TRANSFER	Rn1	Rm1	SUBTRACT	Rn2	Rm2	SUBTRACT	Rn2	Rm2
(6) NO OPERATION	--	--	SUBTRACT	Rn2	Rm2	SUBTRACT	Rn2	Rm2
(7) NO OPERATION	--	--	NO OPERATION	--	--	NO OPERATION	--	--

FIG. 10

OPERATION OF SELECTOR 107

INPUT a2				INPUT b2				OUTPUT			
y1_op	y1_r1	y1_r2	y2_op	x2_r1	x2_r2	s2_op		s2_r1	s2_r2		
(1) NO OPERATION	--	--	ADD	Rn2	Rm2	ADD		Rn2	Rm2		
(2) NO OPERATION	--	--	SUBTRACT	Rn2	Rm2	SUBTRACT		Rn2	Rm2		
(3) NO OPERATION	--	--	ADD	Rn2	Rm2	ADD		Rn2	Rm2		
(4) SUBTRACT	Rn1	Rm1	MULTIPLY	Rn2	Rm2	SUBTRACT		Rn1	Rm1		
(5) SUBTRACT	Rn1	Rm1	NO OPERATION	--	--	SUBTRACT		Rn1	Rm1		
(6) NO OPERATION	--	--	MULTIPLY	Rn2	Rm2	MULTIPLY		Rn2	Rm2		
(7) NO OPERATION	--	--	NO OPERATION	--	--	NO OPERATION		--	--		

FIG. 11

OPERATION OF DATA TRANSFER UNIT 108

INPUT			OPERATION CONTENT
X1_op	x1_r1	x1_r2	
TRANSFER	Rn1	Rm1	TRANSFER DATA FROM Rn1 TO Rm1

FIG. 12

OPERATION OF CALCULATION UNIT 109

INPUT			OPERATION CONTENT
s1_op	s1_r1	s1_r2	
(1) ADD	Rn1	Rm1	STORE Rm1+Rn1 IN Rm1
(2) SUBTRACT	Rn1	Rm1	STORE Rm1-Rn1 IN Rm1
(3) ADD	Rm1	Rn1	STORE Rn1+Rm1 IN Rn1
(4) SUBTRACT	Rn2	Rm2	STORE Rm2-Rn2 IN Rm2

FIG. 13

OPERATION OF CALCULATION UNIT 110

INPUT			OPERATION CONTENT
s2_op	s2_r1	s2_r2	
(1) ADD	Rn2	Rm2	STORE Rm2 + Rn2 IN Rm2
(2) SUBTRACT	Rn2	Rm2	STORE Rm2 - Rn2 IN Rm2
(3) ADD	Rm2	Rn2	STORE Rn2 + Rm2 IN Rn2
(4) SUBTRACT	Rn1	Rm1	STORE Rm1 - Rn1 IN Rm1

FIG. 14

OPERATION OF MULTIPLICATION UNIT 111

INPUT			OPERATION CONTENT
y2_op	y2_r1	y2_r2	
MULTIPLY	Rn2	Rm2	STORE Rm2 * Rn2 IN Rm2

FIG. 15

1. $b[0] = a[0] + a[3]$
2. $b[1] = a[1] + a[2]$
3. $b[2] = a[1] - a[2]$
4. $b[3] = a[0] - a[3]$
5. $c[0] = (b[0] + b[1]) * f_0$
6. $c[1] = (b[0] - b[1]) * f_0$
7. $c[2] = b[2] * (f_1 - f_2) + (b[2] + b[3]) * f_2$
8. $c[3] = b[3] * (f_1 + f_2) - (b[2] + b[3]) * f_2$

FIG. 16

VALUES OF PROGRAM VARIABLES
STORED IN REGISTERS

REGISTER	VARIABLE
R0	a[0]
R1	a[1]
R2	a[2]
R3	a[3]
R4	f0
R5	f1 - f2
R6	f1 + f2
R7	f2

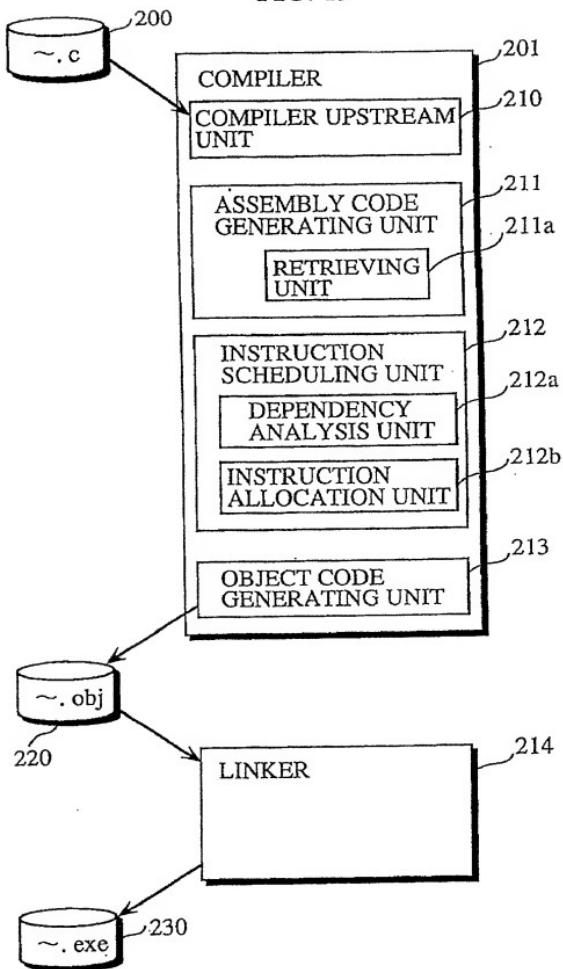
FIG. 17

LONG-WORD INSTRUCTION	FIRST INSTRUCTION SLOT		SECOND INSTRUCTION SLOT			
	1.	2.	3.	4.	5.	6.
	adsb R2, R1				nop	R3, R0
	mov R1, R8				adsb	R5, R1
	mov R0, R9				mul	R6, R0
	add R9, R8				mul	R7, R8
	adss R2, R3				mul	R4, R2
	add R8, R1				sub	R4, R3

FIG. 18

LONG-WORD INSTRUCTION	FIRST INSTRUCTION SLOT	SECOND INSTRUCTION SLOT
1.	mov R1,R8	sub R2,R1
2.	mov R0,R9	sub R3,R0
3.	mov R1,R10	mul R5,R1
4.	mov R0,R11	mul R6,R0
5.	add R11,R10	add R2,R8
6.	add R3,R9	mul R7,R10
7.	add R10,R1	sub R10,R0
8.	mov R9,R12	add R8,R9
9.	sub R8,R12	mul R4,R9
10.	nop	mul R4,R12

FIG. 19



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